

### **Amendments to the Specification:**

Please replace the paragraph beginning at page 3, line 29 and ending at page 4, line 24 with the following rewritten paragraph:

--Presently at least six main methods are providing the first examples of photonic lattices in the form of crystals and films for optical studies. These methods comprise micromachining, holographic photolithography, electrochemistry, field ion beam, glancing angle deposition and colloidal crystal self-assembly. Each approach has strengths and weaknesses, which are in the process of being defined and evaluated. It is not clear whether one or a combination of these methods of physically and chemically shaping materials into PC will dominate in this emerging field. For example, 3-D ~~Lincoln Log~~ LINCOLN LOG® (Wood- Pile) PC architectures, with structural defects have been micro-machined from high refractive index semiconductors like, silicon, gallium arsenide and indium phosphide. These structures have an omnidirectional PBG at near infrared wavelengths. Spiral PC structures made from silica have been made by deposition of appropriate gas phase precursors at a specified angle onto a lithographically patterned rotating substrate. Also, 2-D periodic arrays of air cylinders with structural defects have been made by electron beam lithography as well as photolithography and etching methods. Another method involves making a 2-D or 3-D array of vertically aligned air cylinders with straight or periodically modulated walls with structural defects by lithographic and photo-assisted electrochemical or current modulated electrochemical patterning in silicon wafers. Field ion beam methods have also been utilized to drill microchannels at specified angles into a 2-D periodic array of vertically aligned air cylinders with structural defects made by electron beam lithography or electrochemical patterning. These structures display a pseudo-PBG in the near infrared spectral region. Holey glass fibres are flexible 2-D photonic crystals that guide light over long distances. Here, hand assembled glass rods are heated and pulled into fine strands of flexible glass fibers. 1-D photonic crystals are also of interest. Fiber Bragg gratings are commercially important and may be considered a 1-D photonic crystal. The gratings are formed by laser-imprinting of small periodic refractive index changes into the guiding core of glass fibers and serve to reflect a narrow spectrum of guided light. Multi-layered dielectric mirrors

also behave as a 1-D photonic crystals and are based on moderate to large contrasts in refractive index between alternating thin films of optical materials.--

Please replace the paragraph beginning at page 17, line 20 with the following rewritten paragraph:

--Figure 25 illustrates a procedure for the fabrication of a ~~Lincoln-Log~~ LINCOLN LOG® "Wood-Pile" colloidal crystal superlattice. --

Please replace the heading of Example 2 beginning at page 44, line 1 with the following rewritten paragraph:

--**Example 2**  
**Colloidal crystal ~~Lincoln-Log~~ LINCOLN LOG® "Wood-Pile" superlattice constructed by the method of micro-molding inside capillaries (MIMIC)--**